

What is claimed is:

1. A pressure sensor comprising:

a case having an environmental pressure introduction port;

a sensor element unit disposed in the case for detecting a pressure based on an environmental pressure introduced into the case through the environmental pressure introduction port; and

a filter attached to the environmental pressure introduction port so that the environmental pressure enters the case after passing through the filter, the filter having a filter surface that is positioned along a gravitational direction when the pressure sensor is used.

2. The pressure sensor according to claim 1, wherein the filter surface of the filter has a convex shape protruding to an outside of the case.

3. The pressure sensor according to claim 1, wherein the environmental pressure introduction port is composed of a plurality of opening portions that are divided by a frame.

4. The pressure sensor according to claim 3, wherein each of the plurality of opening portions has an elongated shape with a longitudinal direction approximately parallel to the gravitational direction.

5. The pressure sensor according to claim 3, wherein:  
the frame has a protrusion protruding outward from the case; and

the filter is disposed in contact with a distal end of the protrusion to have the filter surface that is convex and to define a gap portion between the frame and the filter for conducting the environmental pressure into the case.

6. The pressure sensor according to claim 1, wherein the environmental pressure introduction port has an opening area equal to or larger than 90 mm<sup>2</sup>.

7. A pressure sensor comprising:

a case having an environmental pressure introduction port;

a sensor element unit disposed in the case for detecting a pressure based on an environmental pressure introduced into the case through the environmental pressure introduction port; and

a filter attached to the environmental pressure introduction portion so that the environmental pressure is introduced into the case after passing through the filter, wherein:

the environmental pressure introduction port is divided into a plurality of opening portions that are covered with the filter.

8. The pressure sensor according to claim 7, further comprising a frame dividing the environmental pressure introduction port into the plurality of opening portions.

9. The pressure sensor according to claim 8, wherein:  
the frame has a protrusion protruding outwardly from the case; and

the filter is disposed in contact with a distal end of the protrusion to provide a gap portion between the filter and the frame for introducing the environmental pressure into the case.

10. The pressure sensor according to claim 9, wherein:

the environmental pressure introduction port is open in an approximately horizontal direction; and

the filter disposed in contact with the distal end of the protrusion has a filter surface that is curved and extends approximately in parallel with a vertical direction.

11. The pressure sensor according to claim 9, wherein:

the frame has first and second protrusions protruding outwardly from the case and arranged in a gravitational direction;

the first protrusion arranged at an upper side of the second protrusion has a protruding height larger than that

of the second protrusion; and

the filter is disposed in contact with both first and second distal ends of the first and second protrusions to have a curved filter surface.

12. A pressure sensor comprising:

a case having a measurement pressure introduction passage extending in a vertical direction for introducing a measurement pressure and an environmental pressure introduction passage extending in a horizontal direction and having an environmental pressure introduction port that is open in the horizontal direction for introducing an environmental pressure;

a sensor element disposed in the case for detecting the measurement pressure based on the environmental pressure; and

a filter covering the environmental pressure introduction port.

13. The pressure sensor according to claim 12, wherein the filter has a filter surface extending in a direction that forms a specific angle with the vertical direction, the specific angle falling in a range of 0 to 45..

14. The pressure sensor according to claim 12, wherein the filter has a convex filter surface protruding outward from the case in the horizontal direction.